

Physiographic Controls on the Distribution of Eelgrass (*Zostera marina*) in Hood Canal

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Abstract

What controls the distribution of intertidal eelgrass? The native species of eelgrass (*Zostera marina*) provides habitat that both promotes biodiversity in Puget Sound and serves juvenile salmon. We are using four data sets to investigate physiographic controls on eelgrass distribution:

1. An integrated topographic-bathymetric digital elevation model with 10 m X-Y resolution (and somewhat less accuracy).
2. Synthesized tide-gauge data, required to produce the integrated elevation model, that describes tidal planes (MLLW, MLW, MSL, MHW, MHHW).
3. Predictions of shoreline wave energy from a wind model and fetch using the Sverdrup-Munk-Bretschneider method.
4. Classified, georegistered, 1.5-m resolution CASI aerial hyperspectral imagery of intertidal areas along Hood Canal.

We are interested in possible correlations of eelgrass distribution with daily and monthly maximum drying time, daily and monthly maximum and minimum water depths, and predicted average and annual maximum wave energy. We will examine our analyses' sensitivity to analytical cell size, to probable error in DEM elevation, and to error in georegistration of CASI images.